



## State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

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*Governor*

KIM GUADAGNO  
*Lt. Governor*

BOB MARTIN  
*Commissioner*

Mr. Mark Austin  
USEPA-Region 2  
290 Broadway, Floor 20  
New York NY 10007-1866

9June2017

Re: **NJDEP Comments—10Mar17 Draft Focused Feasibility Study Report-Operable Unit 8 (Impoundments 1 & 2 Remediation)**  
Former American Cyanamid Site (Pfizer)  
East Main Street, Bridgewater Township, Somerset County  
NJDEP Preferred Identification Number: 001000

The New Jersey Department of Environmental Protection (NJDEP) had reviewed the 10Mar17 (received 13Mar17) Draft Focused Feasibility Study Report (FFSR)-Operable Unit (OU)-8 (Impoundments 1 & 2 Remediation), pursuant to the Amended & Restated Administrative Consent Order (ARACO) effective 23Dec15, the Site Remediation Reform Act (N.J.S.A.58:10C-1 et seq.), the Administrative Requirements for the Remediation of Contaminated Sites (N.J.A.C. 7:26C), the Technical Requirements for Site Remediation at N.J.A.C. 7:26E, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the National Contingency Plan (NCP), the Resource Conservation and Recovery Act (RCRA) the 18Mar13 Administrative Order on Consent & 8Dec15 Consent Decree between the United States Environmental Protection Agency (USEPA) and Wyeth Holding Corporation/Pfizer. NJDEP comments are as follows:

1. There are a lot of acronyms used throughout the FFSR. It would be beneficial to provide a glossary of the terms/acronyms in the beginning of the FFSR.
2. The FFSR described Impoundment 8 Facility as already having CAMU designation. As stated in my 22Dec16 letter to you (refer to below at the end of this letter), this is incorrect. USEPA had designated (as part of 8Oct98 Record of Decision-ROD) Impoundment 8 Facility as a Corrective Action Management Unit (CAMU) in accordance with the regulations promulgated on 16Feb93 under the authority of sections 1006, 2002(a), 3004(u), 3004(v), 3005(c), 3007 and 3008(h) of the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984. Impoundment 8 Facility met the minimum criteria as specified in the regulations for CAMU, detailed description of which was provided in the 8May96 petition to USEPA by American Home Products Corporation. Designation of Impoundment 8 Facility as a CAMU was intended to allow consolidation of the residual waste of the Group III Impoundments after treatment to the levels specified in Table 2 of the Record of Decision (ROD) prior to consolidation into Impoundment 8 Facility. This CAMU designation of Impoundment 8 Facility was for consolidation of the Group III Impoundments materials only. **Consolidation of any other future site waste/material requires establishment of**

**specific treatment levels related to that waste/material.** The Group III Impoundment ROD has been invalidated because the selected remedies could not meet the requirements of the Air Pollution Control. **Hence, re-designation of Impoundment 8 Facility as CAMU is required for consolidation of any residual remediation waste/material with establishment of appropriate treatment levels.**

3. **Section 1.2.1, Page 1-2, Paragraph 2:** Revise the last 2 lines as follows: Lagoon 6 as well as Impoundments 9A & 25 have been closed under the Resource Conservation and Recovery Act; or are in the process of being closed under RCRA (Lagoon 7 & Impoundment 8).
4. **Section 2.2, Pages 2-1 & 2-2:** Provide existing groundwater flow directions for all water bearing formations.
5. **Section 2.6.1.2, Page 2-6:** Define word “pozzalans”.
6. **Sections 2.6.2, 2.6.3, 3.2.4.2:** Refer to 22Dec16 NJDEP comments on Impoundment 8 Facility and CAMU.
7. **Section 4.3, Table 4-3, Page 4-3:** It is stated that Unconfined Compressive Strength (UCS) criterion for material slated for deposition in the Impoundment 8 Facility is “To Be Determined”. Pursuant to ARACO, material slated for deposition into the Impoundment 8 Facility must have UCS of  $\geq 44$  psi. It is stated that Leachability Reduction criterion is not applicable for Impoundment 8 Facility. Refer to 22Dec16 NJDEP comments on Impoundment 8 Facility and CAMU.
8. **Section 4.3.5.2, Page 4-4:** It is stated that typical criteria for controlling volatile organic compounds (VOCs) emissions are based on the  $10^{-4}$  to  $10^{-6}$  target cancer risk range and non-cancer hazard index of  $\leq 1.0$ . NJDEP air pollution control standards are based on the  $10^{-6}$  target cancer risk level and non-cancer hazard index of  $\leq 1.0$ .
9. **Section 4.4.3, Page 4-5:** Provide an explanation as to how in-situ solidification and stabilization (ISS) would reduce contaminant mass. ISS would increase the overall volume because of addition of reagents to the materials/waste of Impoundments 1 & 2. It is also stated that the Protective Cover which is part of Alternative 3 (also part of Alternative 4) would protect against flooding. Provide an explanation as to how.
10. **Section 4.6, Alternatives Retained for Detailed Analysis:** ISTT is not listed as an alternative retained for detailed analysis; however, it is analyzed as part of a treatment train throughout the document. The text should be modified to reflect this analysis.
11. **Section 5.2.2.1, Page 5-7:** It is stated that columns would extend to a depth of approximately 2 feet below the clay layer lining the bottom of the impoundments. Would this compromise the integrity of the clay layer? Would there be any impact to the groundwater under this clay layer? A description of the clay layer thickness should be provided. If the columns will be extended through the clay layer, then an explanation of why the clay layers are not left intact should be provided.
12. **Section 5.2.2.1, Page 5-8, Paragraph 1:** vapor-phase granular active carbon (VGAC) treatment as well as any subsequent passive venting would require NJDEP Air Pollution Control Permit Equivalent (PEQ).
13. **Section 5.2.2.1, Description:** The Report states that “there would be 810 10-foot-diameter columns in Impoundment 1 and 918 10-foot-diameter columns in Impoundment 2.” A diagram should be provided to illustrate the overlap of these columns. Given that some of the columns would need to set for equipment to be placed on them prior to

initiating soil mixing further to the interior of the impoundments, an explanation of how the set material will be mixed with overlapping columns should be provided.

14. **Section 5.2.2.4, Page 5-8:** Alternative 3 would leave solidified/stabilized material in-place at Impoundments 1 & 2 area, which is in 100-year Flood Plain. Hence long-term effectiveness and permanence would be somewhat compromised (considering the repeated flooding of this area since 1999) compared to Alternatives which would remove materials from Impoundments 1 & 2. This should be reflected in Legends provided in Table 6-1.
15. **Section 5.2.3.5, Page 5-11:** It is stated that based on the 2016 bench-scale test, additional VOC mass removal would occur by using steam during the homogenization/mixing process relative to ISS alone. This should be further evaluated as part of Comparative Analysis of Alternatives in Section 6 and Table 6-1 (particularly for Long-term Effectiveness and Permanence Criterion).
16. **Section 5.2.1, Page 5-16, Paragraph 3:** It is stated that the aqueous phase liquid would be sent offsite for treatment and disposal. Why not treat it at on-site groundwater treatment facility (under design/construction at the site)?
17. **Section 5.2.4.8, Cost: Table 5-4** lists the time to meet RAOs as 24 months; however, in Section 5.2.4.6, the Report states that “the time to achieve Remedial Action Objectives (RAOs) is estimated to be 3 years.” The text should be modified to reconcile these sections.
18. **Section 6.3, Page 6-1:** It is stated that Alternatives 5 & 6 remove the material from the floodplain. This should be reflected in Legends provided in Table 6-1.
19. **Appendix A:**
  - **11Sep15 Letter from Quantum Management to Mr. Mark Austin at USEPA:** Comment 7 recommends a numeric value for toxicity characteristics leaching procedure (TCLP) as opposed to a percentage in reduction in leachability. Despite Cyanamid’s response, NJDEP concurs with this recommendation and suggests that it be included in the Report.
  - **Proposed Performance Criteria for Remedial Alternatives for Impoundments 1 and 2, Operable Unit 8:** Table 1 lists hydraulic Conductivity for ISS and ISTT closure in place, as well as Leachability for ISS and ISTT Impoundment 8 Facility as ‘Not Applicable.’ Further explanation should be provided for these determinations. The Leachability section states that ISS will achieve mass removal; however, ISS without other treatment is simply an amendment process and does not remove mass. Further explanation is required. In addition, the comment from 11Sep15 Letter applies to this section as well as the Summary section.

Sincerely,



Haiyesh Shah

C: Mr. Allan Motter, NJDEP-BEERA  
Mr. Marc Romanell, NJDEP/BGWPA





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Mr. Mark Austin  
USEPA-Region 2  
290 Broadway, Floor 20  
New York NY 10007-1866

22December2016

Re: **NJDEP Comments—9Dec16 Proposal for Using Impoundment 8 Facility as Corrective Action Management Unit for Impoundments 1 & 2 Remediation**  
Former American Cyanamid Site (Pfizer)  
East Main Street, Bridgewater Township, Somerset County  
NJDEP Preferred Identification Number: 001000

The New Jersey Department of Environmental Protection (NJDEP) had reviewed the 9Dec16 (received via email from Mr. Vincent D'Aco-Quantum Management Group) Proposal for Using Impoundment 8 Facility as Corrective Action Management Unit (CAMU) for Consolidation of Treated/Remediated Impoundments 1 & 2 Material, pursuant to the Amended & Restated Administrative Consent Order (ARACO) effective 23Dec15, the Site Remediation Reform Act (N.J.S.A.58:10C-1 et seq.), the Administrative Requirements for the Remediation of Contaminated Sites (N.J.A.C 7:26C), the Technical Requirements for Site Remediation at N.J.A.C. 7:26E, the 18Mar13 Administrative Order on Consent & 8Dec15 Consent Decree between the United States Environmental Protection Agency (USEPA) and Wyeth Holding Corporation/Pfizer. NJDEP comments are as follows:

The referenced Proposal described Impoundment 8 Facility as already having CAMU designation. This is incorrect. USEPA had designated (as part of 8Oct98 Record of Decision-ROD) Impoundment 8 Facility as a Corrective Action Management Unit (CAMU) in accordance with the regulations promulgated on 16Feb93 under the authority of sections 1006, 2002(a), 3004(u), 3004(v), 3005(c), 3007 and 3008(h) of the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA), as amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984. Impoundment 8 Facility met the minimum criteria as specified in the regulations for CAMU, detailed description of which was provided in the 8May96 petition to USEPA by American Home Products Corporation. Designation of Impoundment 8 Facility as a CAMU was intended to allow consolidation of the residual waste of the Group III Impoundments after treatment to the levels specified in Table 2 of the ROD prior to consolidation into Impoundment 8 Facility.

This CAMU designation of Impoundment 8 Facility was for consolidation of the Group III Impoundments materials only. **Consolidation of any other future site waste/material will require establishment of specific treatment levels related to that waste/material.** The Group III Impoundment ROD has been invalidated because the selected remedies could not meet the requirements of the Air Pollution Control. **Hence, re-designation of Impoundment 8 Facility**

**as CAMU is required for consolidation of any residual remediation waste/material with establishment of appropriate treatment levels.**

The referenced proposal included a proposed treatment level of Benzene at 24,000 mg/kg which corresponds to reduce relative risk at ~ 63%. The treatment level for benzene and relative risk factor (RRF) were calculated using the procedure included as part of 1997 Corrective Measure Study (CMS) for Group III Impoundments and 2007 Explanation of Significant Difference (ESD) for Impoundments 14 & 20. The proposed treatment level for Benzene (24,000 mg/kg) was based on a post-treatment benzene concentration of 16,000 mg/kg after bench-scale treatability tests using steam-enhanced in-situ solidification & stabilization (ISS) following two hours of mixing. Since the post-treatment result of benzene was based on laboratory-scale testing, a 50% increase in the treated concentration was conservatively assumed which resulted in the proposed treatment level for benzene at 24,000 mg/kg. This proposed treatment level for benzene is too high to be placed in the Impoundment 8 Facility. Other remedial alternatives should be considered which can achieve treatment level for benzene and other contaminants of concern close to the CAMU requirement of 90% Capped by 10xUST (Refer to discussion below).

In 2002, material from Impoundments 14 and 20 was excavated and placed in managed stockpiles before the start of the aerobic biotreatment program, consistent with the OU3 ROD. During pilot testing to establish permit conditions with the NJDEP and to satisfy the requirements specified in the ROD, it was concluded that aerobic biotreatment on the Impoundment 14 and 20 materials was not attainable as originally determined in the 1998 Feasibility Study. Due to difficulties in consistently remaining within air emission permit values, the inability to meet the overall treatment objectives determined in the ROD, much longer projected treatment rates and burdensome costs, the biotreatment program was reassessed.

While the ROD remedy was being reassessed, the Impoundments 14 and 20 material stockpiles were covered with a waterproof semi-airtight fabric for approximately three and a half years. These storage conditions, designed for storage until a new remedy could be identified, supported anaerobic microbial activity within the storage stockpiles. Subsequent laboratory sample analysis of the material, conducted as part of the reassessment, discovered that substantial reduction in the compounds of concern had occurred under anaerobic conditions. Comparison of these sample results with the Treatment Objectives required by the 1998 ROD indicated that anaerobic biodegradation successfully treated the semi-volatile organic compounds (SVOC) and considerably reduced volatile organic compound (VOC) concentrations. NJDEP and USEPA had concluded that anaerobic biodegradation is not expected to achieve the 1998 Treatment Objectives for VOC, even with additional staging/treatment time. Moreover, the cover fabric for the Impoundments 14 and 20 staging piles was reaching the end of its useful life. Given these factors, NJDEP and USEPA had determined that continuing to stage the Impoundment 14 and 20 materials until other remedies might be considered would not be appropriate. Hence, ESD was established in 2007 to change the Treatment Objectives (i.e. Benzene from 60 mg/kg to 2,529 mg/kg) for the Impoundment 14 and 20 materials and allow it to be placed in the Impoundment 8 Facility without further biotreatment (with solidification).

Based on these factors, it is not appropriate to use the methodology and circumstances that lead to consolidation of Impoundments 14 & 20 material at treatment level of benzene at 2,529 mg/kg into Impoundment 8 Facility for the Impoundment 1 & 2 or any other remaining waste/material at the site.

The remaining remediation waste/material at the site requiring consolidation into the Impoundment 8 Facility must have a new CAMU designation and the appropriate treatment objectives established for all Contaminants of Concern (Benzene, Toluene, Xylene, 1, 2-Dichlorobenzene, 2-Methylnaphthalene, Naphthalene, Nitrobenzene and N-nitrosodiphenylamine) using the following approach:

Federal Register/Vol. 67, No. 14/22Jan02—40 CFR Parts 260, 264 & 272, Amendment to the Corrective Action Management Unit Rule-Final:

Standard of 90% Capped by 10xUTS: USEPA finalized a minimum national treatment standard of ninety (90) percent reduction in concentrations of Principal Hazardous Constituents (PHCs) unless such treatment would result in concentrations that are less than ten (10) times the relevant Universal Treatment Standard (UTS), in which case treatment would be capped at ten times the universal treatment standard. This standard was established for hazardous contaminated soil in the land disposal restriction (LDR) Phase IV rule and is commonly referred to as "90% capped by 10xUTS." For details on implementation of this standard, see the description in the LDR Phase IV rule, 40 CFR 268.49, 63 FR 28556, 28605 (May 26, 1998). Universal treatment standards are identified in 40 CFR 268.48, Universal Treatment Standards Table.

In general, if the CAMU-eligible hazardous waste has a treatment standard that is measured by total constituent concentrations (i.e., organics and cyanide), then the 90% reduction would be measured using total constituent concentrations. If the treatment standard for the waste is measured using the toxicity characteristics leaching procedure (TCLP) or an approved alternative leach test (i.e., for metals), then the 90% reduction would also be measured using the TCLP or the proposed alternative leach tests. If wastes contaminated with metal constituents were treated using a technology which removed, rather than stabilized metals, the 90% reduction would be measured using total constituent concentrations.

Sincerely,



Haiyesh Shah

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Mr. Marc Romanell, NJDEP/BGWPA